10. AIR QUALITY

This EIR chapter describes the impacts of the proposed project and project-facilitated buildout scenario on local and regional air quality. The chapter was prepared using methodologies and assumptions recommended within the air quality impact assessment guidelines of the Bay Area Air Quality Management District (BAAQMD).[1] In keeping with these guidelines, the chapter describes existing air quality, potential short-term construction-related impacts, direct and indirect long-term emissions associated with the project-facilitated buildout scenario, the impacts of these emissions on both the local and regional scale, and mitigation measures warranted to reduce or eliminate any identified significant impacts.

10.1 SETTING

10.1.1 Air Basin Characteristics

The amount of a given pollutant in the atmosphere is determined by the amount of pollutant released and the atmosphere's ability to transport and dilute the pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain and, for photochemical pollutants, sunshine.

Prevailing winds in the project area vicinity are northwesterly and northerly, reflecting the orientation of San Francisco Bay and the San Francisco Peninsula. Winds from these directions carry pollutants released by autos and factories from upwind Peninsula areas toward Sunnyvale, particularly during the summer months. On average, winds are lightest in fall and winter. Every year in fall and winter, there are periods of several days when winds are particularly light, permitting buildup of local pollutants.

Pollutants can be diluted by mixing in the atmosphere both vertically and horizontally. Vertical mixing and dilution of pollutants are often suppressed by inversion conditions, when a warm layer of air traps cooler air close to the surface. During the summer, inversions are present in the South Bay over 90 percent of the time in both the morning and afternoon. In winter, surface-based inversions dominate in the morning hours, but frequently dissipate by afternoon.

Topography can also restrict horizontal dilution and mixing of pollutants by creating a barrier to air movement. The South Bay has significant terrain features that affect air quality. The Santa

[1] Bay Area Air Quality Management District, CEQA Air Quality Guidelines, April 1996.

Cruz Mountains and Hayward Hills on either side of the South Bay restrict horizontal dilution, and channel winds from the north to south, carrying pollution from the northern Peninsula toward Sunnyvale.

The combined effects of moderate ventilation, frequent inversions that restrict vertical dilution, and terrain that restricts horizontal dilution, give Sunnyvale a relatively high atmospheric potential for pollution compared to other parts of the San Francisco Bay Air Basin and provide a high potential for transport of pollutants to the east and south.

10.1.2 Air Pollutants and Ambient Standards

Both the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. Individuals vary as to their sensitivity to air pollutants, so the national and state standards have been set at levels that protect groups that are more sensitive (e.g., asthmatics).

National ambient air quality standards (NAAQS) were established by the federal Clean Air Act of 1970 (amended in 1977 and 1990) for six "criteria" pollutants. These criteria pollutants include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), particulates (since changed to inhalable and fine particulate matter--PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). These are considered the most prevalent air pollutants that are known to be hazardous to human health. A summary description of these six criteria pollutants and their potential health effects is presented in Table 10.1.

The federal and California state ambient air quality standards are summarized in Table 10.2 for important pollutants. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California state standards are more stringent. This is particularly true for ozone and particulate matter, 10 micron (PM_{10}).

The U.S. EPA has recently adopted new national air quality standards for ground-level ozone and for fine particulate matter. The existing 1-hour ozone standard of 0.12 PPM will be phased out and replaced by an 8-hour standard of 0.08 PPM. New national standards for fine particulate matter (diameter 2.5 microns or less) have also been established for 24-hour and annual averaging periods. Implementation of the new ozone and $PM_{2.5}$ standards was originally scheduled to occur by the year 2000, but was delayed by litigation. Since then, these new standards were determined to be valid and enforceable by the U.S. Supreme Court in a decision issued in February 2001. Full implementation of these standards will not occur until the U.S. EPA has issued court-approved guidance.

California established ambient air quality standards as early as 1969 through the Mulford-Carrol Act. The California Clean Air Act of 1988 (amended in 1992) requires attainment of the California ambient air quality standards (CAAQS). In many cases, these standards are more stringent than the national ambient air quality standards.

Table 10.1
MAJOR CRITERIA AIR POLLUTANTS AND HEALTH EFFECTS SUMMARY

Pollutant	Characteristics	Health Effects	Major Sources
Ozone (O_3)	A highly reactive photochemical pollutant created by the action of sunshine on ozone precursors (primarily reactive organic gases and oxides of nitrogen). Often called photochemical smog.	▪ Eye Irritation ▪ Respiratory function impairment.	The major sources of ozone precursors are combustion sources such as factories and automobiles, and evaporation of solvents and fuels.
Carbon Monoxide (CO)	Carbon monoxide is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels.	▪ Impairment of oxygen transport in the bloodstream. ▪ Aggravation of cardiovascular disease. ▪ Fatigue, headache, confusion, dizziness. ▪ Can be fatal in the case of very high concentrations.	Automobile exhaust, combustion of fuels, combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide (NO_2)	Reddish-brown gas that discolors the air, formed during combustion.	▪ Increased risk of acute and chronic respiratory disease.	Automobile and diesel truck exhaust, industrial processes, fossil-fueled power plants.
Sulfur Dioxide (SO_2)	Sulfur dioxide is a colorless gas with a pungent, irritating odor.	▪ Aggravation of chronic obstruction lung disease. ▪ Increased risk of acute and chronic respiratory disease.	Diesel vehicle exhaust, oil-powered power plants, industrial processes.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Solid and liquid particles of dust, soot, aerosols and other matter which are small enough to remain suspended in the air for a long period of time.	▪ Aggravation of chronic disease and heart/lung disease symptoms.	Combustion, automobiles, field burning, factories and unpaved roads. Also a result of photochemical processes.
Lead (Pb)	Component of particulate matter. Levels have dropped 98 percent in last 30 years due to elimination of lead from gasoline.	• Learning disabilities • Brain and kidney damage • Children particularly susceptible	Leaded gasoline (no longer allowed), smelters, resource recovery.

SOURCE: Wagstaff and Associates, Donald Ballanti, 2003.

Table 10.2
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Federal Primary Standard[1]	State Standard[2]
Ozone (O_3)	1-Hour	0.12 PPM	0.09 PPM
	8-Hour	0.08 PPM	--
Carbon Monoxide (CO)	8-Hour	9.0 PPM	9.0 PPM
	1-Hour	35.0 PPM	20.0 PPM
Nitrogen Dioxide (NO_2)	Annual Average	0.05 PPM	---
	1-Hour	---	0.25 PPM
Sulfur Dioxide (SO_2)	Annual Average	0.03 PPM	---
	24-Hour	0.14 PPM	0.05 PPM
	1-Hour	---	0.25 PPM
Particulates (PM_{10})	Annual Average	50 ug/m3	20 ug/m3
	24-Hour	150 ug/m3	50 ug/m3
Particulates ($PM_{2.5}$)	Annual Average	15 ug/m3	12 ug/m3
	24-Hour	65 ug/m3	--
Lead (Pb)	3 month	1.5 ug/m3	--
	30 day	--	1.5 ug/m3

SOURCE: Donald Ballanti, 2003.

ppm = Parts Per Million, ug/m3 = Micrograms Per Cubic Meter

[1] National standards other than for ozone and those based on annual averages or annual arithmetic means are not to be exceeded more than once a year.

[2] California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, and PM-10 are values that are not to be exceeded. The standards for lead are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average, then some measurements may be excluded. In particular, measurements are excluded that ARB determines would occur less than once per year on the average.

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation and monitoring of TACs by the BAAQMD is relatively recent compared to criteria pollutants. Unlike criteria pollutants, TACs are regulated on the basis of risk rather than specification of safe levels of contamination.

10.1.3 Current Air Quality

The BAAQMD monitors air quality at several locations within the San Francisco Bay Air Basin; however, none are located in Sunnyvale. The closest multi-pollutant monitoring site to the project area is located in downtown San Jose on Fourth Street. Table 10.3 summarizes exceedances of state and federal standards at this monitoring site during the period 1999-2001. The table shows that between 1999 and 2001, ozone and PM_{10} levels periodically exceeded state standards in the South Bay. Violations of the carbon monoxide standards had also been recorded at this monitoring site prior to 1992.

The BAAQMD began monitoring for a single pollutant (ozone) at 910 Ticonderoga Drive in Sunnyvale in 2001. No violations of the ozone standards were recorded at this location in 2001.

10.1.4 Existing Pollutant Sources and Sensitive Receptors in the Project Area

The largest existing sources of pollutants within the proposed project area are vehicles on the local roadway network. In addition, houses and businesses within the area contribute air pollutants through combustion of fuels for space heating and water heating.

"Sensitive receptors" are defined as land uses where sensitive population groups (children, the elderly, the acutely ill and the chronically ill) are likely to be located. These land uses include schools, playgrounds, child care centers, retirement homes, convalescent homes, hospitals and medical clinics. There are numerous such "receptors" in the project area vicinity that could potentially be affected by air pollution.

10.2 PERTINENT PLANS AND POLICIES

10.2.1 Regional Air Quality Plans

National ambient air quality standards (NAAQS) were established by the federal Clean Air Act of 1970 (amended 1977 and 1990) for the six criteria pollutants described in subsection 10.1.2 and Table 10.1, above. In addition, the California Clean Air Act of 1988 (amended in 1992) requires attainment of the California ambient air quality standards (CAAQS), which are often more stringent than federal standards. These federal and state standards are summarized in Table 10.2 and in subsection 10.1.2, above.

Table 10.3
SUMMARY OF AIR QUALITY DATA FOR SAN JOSE, 1999-2001

Pollutant	Standard	Days Exceeding Ambient Standards in: 1999	2000	2001
Ozone (O_3)	Fed. 1-Hour	0	0	0
Ozone (O_3)	Fed. 8-Hour	0	0	0
Ozone (O_3)	State 1-Hour	3	0	1
Carbon Monoxide (CO)	State/Fed. 8-Hour	0	0	0
Particulate Matter ($PM_{2.5}$)	Fed. 24-Hour	2	0	0
Particulate Matter (PM_{10})	Fed. 24-Hour	0	0	0
Particulate Matter (PM_{10})	State 24-Hour	5	2	2
Nitrogen Dioxide (NO_x)	State 1-Hour	0	0	0

SOURCE: California Air Resources Board, Aerometric Data Analysis and Management (ADAM), 2003.

The federal Clean Air Act and the California Clean Air Act require that the State Air Resources Board, based on air quality monitoring data, designate portions of the state where the federal or state ambient air quality standards are not met as "nonattainment areas". Because of the differences between the national and state standards, the designation of nonattainment areas is different under the federal and state legislation.

10.2.2 Attainment Status

(a) Federal. The Bay Area had until recently attained all federal standards. In 1995, the air basin was reclassified by the U.S. EPA as a "maintenance area" for ozone. In June of 1998, the Bay Area was reclassified again by the U.S. EPA from "maintenance area" to nonattainment for ozone, based on violations of federal standards at several locations in the air basin. Such reclassifications require updates to the region's federal air quality plan.

(b) State. Under the California Clean Air Act, Santa Clara County is a nonattainment area for ozone and PM_{10}. The county is either an attainment area or unclassified for other pollutants. The California Clean Air Act requires local air pollution control districts to prepare air quality attainment plans. These plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods or if not, provide for adoption of "all feasible measures on an expeditious schedule."

10.2.3 City of Sunnyvale General Plan

The City of Sunnyvale General Plan *Environmental Management Element, Air Quality Sub-Element* (adopted 1993) contains the following policies and action statements pertinent to consideration of the air quality impacts of the proposed project:

- *Require all new development to utilize site planning to protect citizens from unnecessary exposure to air pollutants.* (Policy A.1, p. 54)

- *Evaluate new development with potential sources of odors or criteria air pollutants to determine whether it is appropriate for them to be located near existing or planned residential development or sensitive receptors.* (Action Statement A.1.a, p. 54)

- *Utilize land use strategies to reduce air quality impact.* (Policy B.1, p. 55)

- *Promote mixed land use development that provides commercial services such as day care, restaurants, banks, and stores near employment centers, reducing auto trip generation by promoting pedestrian travel....* (Action Statement B.1.b, p. 55)

- *Assist employers in meeting requirements of Transportation Demand Management (TDM) plans for existing and future large employers, and participate in the development of TDM plans for employment centers in Sunnyvale.* (Policy B.2, p. 56)

- *Enforce the provisions of the City's TDM ordinance covering businesses employing 100 or more persons.* (Action Statement B.2.a, p. 56)

- *Apply the Indirect Source Rule to new development with significant air quality impacts. Indirect Source review would cover commercial and residential projects as well as other land uses that produce or attract motor vehicle traffic.* (Policy B.3, p. 56)

- *Require site design to encourage transit circulation and stops/waiting areas for transit and carpools.* (Action Statement B.3.c, p. 57)

- *Improve opportunities for citizens to live and work in close proximity.* (Policy C.2, p. 58)

- *In the long term, the City should encourage a better balance between jobs and housing than currently exists in Sunnyvale to reduce long-distance commuting.* (Action Statement C.2.a, p.58)

10.3 IMPACTS AND MITIGATION MEASURES

10.3.1 Significance Criteria

Based on the CEQA Guidelines,[1] the proposed project (Downtown Improvement Program Update) and/or its anticipated growth effects would be considered to have a significant impact if they result in any of the following:

(a) conflict with or obstruct implementation of the applicable air quality plan;

(b) violate any air quality standard or contribute substantially to an existing or projected air quality violation;

(c) result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

(d) expose sensitive receptors to substantial pollutant concentrations; or

(e) create objectionable odors affecting a substantial number of people;

Under these criteria, the project and/or its growth-inducing effects would be considered to have a significant air quality impact if they would:

[1]CEQA Guidelines, 2002. Appendix G, items III (a) through (e).

(f) contribute to carbon monoxide (CO) concentrations exceeding the State Ambient Air Quality Standard of 9 parts per million (ppm) averaged over 8 hours or 20 PPM for one hour;

(g) generate criteria air pollutant emissions in excess of the BAAQMD annual or daily thresholds; the current thresholds are 15 tons/year or 80 pounds/day for reactive organic gases (ROG), nitrogen oxides (NO_x), or PM_{10};

(h) have the potential to frequently expose members of the public to objectionable odors; or

(i) have the potential to expose sensitive receptors or the general public to substantial levels of toxic air contaminants.

In addition, for construction period air emissions impacts, the BAAQMD significance threshold for construction dust impact is based on the appropriateness of construction dust controls. The BAAQMD guidelines provide feasible control measures for construction emission of PM_{10}. If the appropriate construction controls are to be implemented, then air pollutant emissions for construction activities would be considered less-than-significant.

10.3.2 Short-Term Construction Period Air Quality Impacts

Impact 10-1: Construction-Related Air Quality Impacts. Demolition or construction activities permitted and/or facilitated by the proposed project components (Specific Plan, General Plan, Zoning Code, and Redevelopment Plan amendments) may generate construction period exhaust emissions and fugitive dust that could noticeably affect local air quality. This would represent a ***potentially significant impact*** (see criteria (c), (d) and (e) in subsection 10.3.1, "Significance Criteria," above).

Construction activities associated with project-facilitated public and private development in the Sunnyvale central area may include building demolition, building renovation or modification, grading, new building construction, and paving. Such construction would generate pollutants intermittently. Generally, the most substantial air pollutant emissions would be dust generated from building demolition or site grading. The physical demolition of existing structures and other infrastructure can generate substantial dust. In addition to the dust created during demolition, substantial dust emissions could be created as debris is loaded into trucks for disposal. Without adequate dust control measures, visible dust clouds extending beyond the construction or demolition site could occur.

Wind erosion and disturbance to exposed (graded) ground areas would also be sources of dust emissions. Dust can continue to affect local air quality during construction. Construction activities can generate exhaust emissions from vehicles/equipment and fugitive particulate matter emissions that would affect local air quality. Construction activities are also a source of organic gas emissions. Solvents in adhesives, non-waterbase paints,

thinners, some insulating materials, and caulking materials can evaporate into the atmosphere and participate in the photochemical reaction that creates urban ozone. Asphalt used in paving is also a source of organic gases for a short time after its application.

If uncontrolled, such emissions could lead to both health and nuisance impacts. PM_{10} is a component of dust. Although temporary, such effects would represent a *significant adverse impact* to local air quality.

Mitigation 10-1: For all discretionary grading, demolition, or construction activity in the project area, require implementation of the following dust control measures by construction contractors, where applicable:

During ***demolition*** of existing structures:

- Water active demolition areas to control dust generation during demolition of structures and break-up of pavement.
- Cover all trucks hauling demolition debris from the site.
- Use dust-proof chutes to load debris into trucks whenever feasible.

During ***all construction phases:***

- Water all active construction areas at least twice daily.
- Water or cover stockpiles of debris, soil, sand, or other materials that can be blown by the wind.
- Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least two feet of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.

(continued)

Mitigation 10-1 (continued):

- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydroseed or apply (nontoxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Enclose, cover, water twice daily, or apply (nontoxic) soil binders to exposed stockpiles (dirt, sand, etc.).
- Limit traffic speeds on unpaved roads to 15 miles per hour.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.

Implementation of these measures would reduce the impact of the project to a ***less-than-significant level.***

10.3.3 Long-Term Local Air Quality Effects

Changes in Local Carbon Monoxide Levels. Development activity resulting from the proposed project would generate new vehicle trips. Along local streets, these new trips would affect concentrations of carbon monoxide. Within the regional air basin, these new trips would add to the pollution burden. Nevertheless, modeling results indicate that future local carbon monoxide levels near worst-case intersections in the project area under the "with project" year 2020 growth scenario would be well within state and federal air quality standards. This impact would therefore be considered ***less-than-significant.***

At the local level, the pollutant of greatest concern is carbon monoxide. Concentrations of carbon monoxide are greatest near intersections and roadways with congested traffic. Such carbon monoxide emissions can be a problem in wintertime when stagnant meteorological conditions occur (i.e., very little vertical or horizontal mixing of air in the lower atmosphere).

Future "with project" local carbon monoxide levels were modeled using a screening form of the CALINE-4 computer model developed by the BAAQMD. Carbon monoxide levels were modeled at the ten busiest signalized intersections affected by growth and intensification in the project area, each forecasted to operate at LOS E or F in the year 2020 during the critical PM peak hour. Modeled inputs included "with project" worst-case traffic levels and meteorological conditions for wintertime when the greatest potential for elevated carbon monoxide levels

occur. Carbon monoxide levels were modeled at the roadway edge (e.g., outside edge of sidewalk). Modeled levels were added to background levels. A description of the CALINE-4 computer methodology and assumptions is included in appendix 21.3 of this EIR.

The results of the modeling for the ten intersections are shown in Table 10.4. The concentrations in Table 10.4 are to be compared to the state and federal ambient air quality standards: predicted 1-hour concentrations are to be compared to the state standard of 20 PPM and the federal standard of 35 PPM; predicted 8-hour concentrations are to be compared to the state and federal standard of 9 PPM.

The modeling results indicate that existing and future carbon monoxide levels under the year 2020 "with project" scenario would be below the state and federal air quality standards. Project-facilitated intensification would have a mixed impact on carbon monoxide concentrations. Some intersections would experience higher concentrations while others would remain the same, and one would have lower 1-hour concentrations. The maximum predicted increase would be 0.2 PPM. Predicted future levels of carbon monoxide at the selected "hot spot" intersections would meet both the 1-hour and 8-hour state/federal ambient air quality standards under both the "no project" and "with project" scenarios. Since carbon monoxide levels associated with the "with project" year 2020 development scenario would not exceed state or federal air quality standards, the project's impact on local carbon monoxide levels is considered ***less-than-significant***.

Mitigation. No significant local carbon monoxide impacts have been identified; no mitigation is required.

10.3.4 Long-Term Regional Air Quality Effects

Impact 10-2: Long-Term Regional Emissions Increases. Future traffic increases under the project-facilitated development scenario would generate regional emissions increases which would exceed the applicable thresholds of significance for reactive organic gases (ROG), nitrous oxide (NO_x), and particulate matter (PM_{10}). This effect is considered to be a ***significant project and cumulative impact*** (see criteria (a) through (d) in subsection 10.3.1, "Significance Criteria," above).

(a) Beneficial Impacts on Regional Air Quality. Project-facilitated growth in the central area under the proposed *Downtown Design Plan* land use policies would have several characteristics that would tend to reduce automobile usage. By facilitating development of a more intensive mixture of central area land uses in close proximity, the Design Plan would promote residential development near shopping, services, entertainment, jobs and public transportation, and would encourage pedestrian and bicycle modes of travel.

Table 10.4
EXISTING AND PREDICTED WORST CASE CARBON MONOXIDE (CO) CONCENTRATIONS NEAR SELECTED INTERSECTIONS, IN PPM --YEAR 2020 "WITH PROJECT" SCENARIO

	Existing (2003)		No Project (2020)		Project (2020)		Cumulative (2020)	
Intersection	1-Hr	8-Hr	1-Hr	8-Hr	1-Hr	8-Hr	1-Hr	8-Hr
California/Mathilda	10.8	6.7	8.9	5.4	8.9	5.4	8.9	5.4
Mathilda/El Camino Real	10.3	6.3	8.5	5.2	8.5	5.2	8.5	5.2
Sunnyvale/El Camino Real	10.3	6.3	8.4	5.1	8.4	5.1	8.4	5.1
Sunnyvale-Saratoga/Fremont	10.2	6.3	8.3	5.0	8.5	5.0	8.5	5.0
Sunnyvale-Saratoga/Homestead	11.5	7.1	9.2	5.7	9.3	5.7	9.3	5.7
Mary/Central	10.7	6.6	9.4	5.8	9.4	5.8	9.4	5.8
Mary/Evelyn	9.8	6.0	8.4	5.1	8.4	5.1	8.4	5.1
Mary/El Camino Real	10.2	6.2	8.4	5.1	8.4	5.1	8.4	5.1
El Camino Real/Remington	9.9	6.0	8.3	5.0	8.3	5.0	8.3	5.0
El Camino Real/Wolfe	10.2	6.2	8.5	5.1	8.5	5.1	8.5	5.1
Most Stringent Standard	20.0	9.0	20.0	9.0	20.0	9.0	20.0	9.0

SOURCE: Donald Ballanti, 2003.

(b) Adverse Impacts on Regional Air Quality. The proposed project is expected to induce an increased rate and amount of residential and commercial growth within the project area (see Table 3.3 in chapter 3 of this EIR). Resultant additional vehicle trips to and from the project area would result in air pollutant emissions increases affecting the overall San Francisco Bay air basin.

Regional emissions of ozone precursors (reactive organic gases, ROG, and nitrogen oxides, NO_x) and PM_{10} associated with projected increases in vehicle use have been calculated using the URBEMIS 2001 (Version 6.2.2) computer program.[1] This computer program is distributed for this purpose by the California Air Resources Board. The model is designed to evaluate total regional air pollutant emissions under different land use scenarios. The model-projected daily emissions increases associated with the project-facilitated growth scenario are identified in Table 10.5. The emissions forecasts in Table 10.5 include an adjustment for internal trips resulting from the central area infill, mixed-use nature of the project.

Guidelines for the evaluation of project impacts issued by the BAAQMD consider emission increases of ozone precursors and other regional pollutants to be significant if they exceed 80 pounds per day. As illustrated in Table 10.5, projected increases in vehicle trips associated with the year 2020 "with project" development scenario are expected to generate increases in reactive organic gases, oxides of nitrogen, and particulate matter which would exceed the thresholds of significance used by the BAAQMD.

[1]URBEMIS 2001 input included an ambient temperatures of 85°F, 30 mph average trip speed, and a future build-out year of 2020. Default values were used for all other parameters. A description of the URBEMIS 2001 computer methodology and assumptions is included in appendix 21.3 of this EIR.

Table 10.5
OTHER PREDICTED REGIONAL EMISSIONS, IN POUNDS PER DAY--
YEAR 2020 "WITH PROJECT" SCENARIO

	Regional Emissions		
Assumed Buildout	Reactive Organic Gases	Nitrogen Oxides	PM_{10}
1993 Downtown Specific Plan (existing)	129.5	94.2	122.8
2002 Downtown Design Plan/Improvement Program Update (proposed)	148.6	108.5	143.5
BAAQMD Significance Threshold	80.0	80.0	80.0

SOURCE: Donald Ballanti, 2003.

Mitigation 10-2: Apply the following emissions control strategies where applicable to project-facilitated discretionary residential and commercial development activities within the project area in order to reduce overall traffic generation:

- Where practical, future development proposals shall include physical improvements, such as sidewalk improvements, landscaping and the installation of bus shelters and bicycle parking, that would act as incentives for pedestrian, bicycle and transit modes of travel.

- New or modified roadways should include bicycle lanes where reasonable and feasible.

- Where practical, employment-intensive development proposals (e.g., office, retail, R&D) shall include measures to encourage use of public transit, ridesharing, van pooling, use of bicycles, and walking, as well as to minimize single passenger motor vehicle use.

- Office land uses would generate home-to-work commute trips that are most amenable to Transportation Demand Management (TDM) programs. As a condition of approval, all office development projects within the project area of 10,000 square feet (approximately 25 employees) or greater shall implement a TDM program, including vehicle use reduction strategies such as the following:

  - a carpool/vanpool program, e.g., carpool ride-matching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.;

  - a transit use incentive program for employees, such as on-site distribution of passes and/or subsidized transit passes for local transit systems;

  - preferential parking for electric or alternatively fueled vehicles;

  - a guaranteed ride home program;

  - a flextime policy;

  - on-site child care;

  - showers and lockers for employees bicycling or walking to work;

(continued)

Mitigation 10-2 (continued):

- secure and conveniently located bicycle parking and storage for workers; and/or

- a parking cash-out program for employees (where non-driving employees receive transportation allowance equivalent to the value of subsidized parking).

- Adopt policies and programs that will implement the "smart-growth" strategies of the Smart Growth Strategy/Regional Livability Footprint Project being developed by the Association of Bay Area Governments and other regional agencies. (As noted in subsection 10.3.4, "Beneficial Impacts on Regional Air Quality," the proposed project includes components--e.g., central area mixed use and residential uses near services, public transportation, etc.--that are considered characteristics of "smart growth.")

Implementation of these measures would assist in reducing the project-related and cumulative impacts on long-term regional ROG, NO_2, and PM_{10} emissions levels by perhaps 10 to 20 percent, but may not reduce these impacts to a less-than-significant level. Since reductions of over 50 percent would be required to bring project-related regional emissions increases to levels below BAAQMD significance thresholds, the project and cumulative effects on ROG, NO_2, and PM_{10} emissions levels would represent a ***significant unavoidable impact***.